



A P P E N D I X

CONTAINING THE

A N S W E R S

TO THE

EXAMPLES and QUESTIONS

I N T H E

T U T O R ' s G U I D E .



Sect. 6. R E D U C T I O N. 16.

THE Examples here all prove each other except the 4th Ex. in Page 22, which is 120096 pts. instead of 12096 pts. And the 4th Ex. in Square Measure which is 443296 Inches instead of 49312 Inches.

Sect. 7: A D D I T I O N. 27.

1. 240 Days.
2. Anno 1829,

3. 30 Years.
4. In his 69th Year.

A

12.

- | | |
|--|---------------------------------|
| 5. $73\frac{1}{2}$ Years. | 13. 1108l. 18s. 3d. |
| 6. 167. | 14. 33ol. 12s. 1d. |
| 7. Eldest 13111 $\frac{1}{2}$ l. Father
left 25222 $\frac{1}{2}$ l. | 15. 72l. 2s. 6 $\frac{1}{2}$ d. |
| 8. 1656 Years. | 16. 272ol. 4s. |
| 9. 366 Days. | 17. 1432 oz. 5 dwts. |
| 10. 202 Miles. | 18. 8 cwt. 2 qrs. 15lb. |
| 11. 100 $\frac{1}{2}$ l. | 19. 184 m. 1 fur. 23 poles. |
| 12. 941l. 17s. 11d. | 20. 53 Years, 12 Days. |

33. Sect. 8. SUBTRACTION.

- | | |
|---|---|
| 1. 43 Years. | Jaf. 43, Sum 146 |
| 2. Diff. 30 Sum 174 | Years. |
| 3. 28 Feet. | 23. C. 1156, D. 1269, D, |
| 4. 28 Years. | Y. 1601. |
| 5. Grand. 134, Father
71, Sons 41 Years. | 24. I. 51, you 36. |
| 6. 36 Years. | 25. Inv. of the Comp. |
| 7. 89 Years. | Anno. 1302. Gun- |
| 8. 3281lb. Avoirdupoise. | powder 1344. Amer |
| 9. Hip. and Arch. 1958,
Pos. 1808 and Ptol.
1618. | disco. 1492. Print- |
| 10. 24600lb. | ing invented A. D. |
| 11. 29 Years. | 1440. |
| 12. 4 Days. | 26. A. D. 1936. |
| 13. 46 C's, 63 A's and 76
B's Age. | 27. A. 23, B. 90. |
| 14. 433 Years. | 28. London by 326 Years. |
| 15. 312 Years. | 29. Of the Sun 80760000 |
| 16. 1813 Years. | Miles, the Moon |
| 17. 118 Million of Miles. | 81240000 |
| 18. 95 Years. | 30. Anno 4000. |
| 19. Eber. was Surv. 29
Years Inter. 275. | 31. Anno 1656, 726 Year
at the Death of Adam |
| 20. 87 Years. | 32. 8600 $\frac{1}{2}$ l. |
| 21. B. 525. C. 421. D.
337. E. 449. F. 496. | 33. 12 Years. |
| 22. Sam. 59. Rach. 32. | 34. 118 Years. |
| | 35. Ja. 1847, Timo. 1821,
Sam 1838. |
| | 36. A. 74. B. 55, C. 59, D.
80 Years. |
| | 37. 152 Years. |

Appendix.

38. Births, A. 1438, B. 1425, C. 1555, D. 1584, demise 1486. 1502, 1631, 1648 Birth E. 1635, F. 1662, G. 1693, demise 1700.
39. Sum 398, F. Sen. 22 Years.
40. 10l. 6s.
41. 91l. 5d.
42. 76l. 11s. 9d.
43. Cha. 11l. 3s. 6d. Har. 2l. 9s 6d. Hor. 36l. 7s.
44. 9830l 7s. 5d.
45. 11619l. 3s. 1d.
46. 391l. 14s. 3d. to be remitted by him.
47. 1 Year, 11 mo. 3 w. 2d. 12 h. 49 m.
48. To A. 39l. 11s. 2d. B. 62l. 11s. 6d. C. 49l. 8s. 10d. jointly 151l. 11s. 6d.
49. 3 cwt. 6 lb.
50. To W. 22zl. 7s. 3d. X. 33l. 6s. 5d. Y. 82l. 14s. 4d Z. 141l. 5s. 9d. jointly 479l. 13s. 9d.
51. 25l. 3s. 6d.
52. 58l. 2s. 6d.
53. 365l. 2s. 6d.
54. 1000l. 10s. 6d.

Sect. 9. MULTIPLICATION.

44

No.	£.	s.	d.	No.	£.	s.	d.	No.	£.	s.	d.
2.	15	2	6	19.	7	7	0	36.	13	14	2
3.	2	14	10	20.	99	4	0	37.	30	1	9
4.	7	10	4	21.	31	18	0	38.	391	19	0
5.	5	14	0	22.	56	14	0	39.	23	18	1 $\frac{1}{2}$
6.	23	3	4	23.	5	18	8 $\frac{1}{2}$	40.	85	18	2 $\frac{1}{2}$
7.	6	18	5	24.	3	18	4	41.	13	5	0
8.	4	14	9	25.	37	16	0	42.	1	2	11 $\frac{1}{4}$
10.	0	15	4 $\frac{1}{2}$	26.	9	2	0	43.	107	7	9
11.	17	10	0	27.	93	16	10 $\frac{1}{2}$	44.	125	19	11 $\frac{1}{2}$
12.	66	16	6	28.	59	3	4	45.	31	10	4
13.	7	8	9	29.	15	0	0	46.	36	15	11 $\frac{1}{2}$
14.	19	4	0	30.	12	2	0	47.	2700	18	9
15.	3149	19	1 $\frac{1}{2}$	31.	11	17	0	48.	720	0	0
16.	0	9	4 $\frac{1}{2}$	33.	18	19	7 $\frac{1}{4}$	49.	10	12	4
17.	67	10	0	34.	2	7	1 $\frac{1}{2}$	50.	40	12	0
18.	49	1	6	35.	109	5	0	51.	17	2	8 $\frac{1}{2}$

A 2

QUESTIONS.

Q U E S T I O N S.

- | | |
|--------------------------|---------------------------|
| 1. 2042. | 11. 1708088549 Sum of |
| 2. 7100l. | the Square. |
| 3. Diff. 792, Sum 936. | 12. 380035 Acres. |
| 4. 2184 Par. 537264 Ho. | 13. 1296. |
| 5372640 Persons. | 14. 29l. 18s. |
| 5. 20 and 50. | 15. 34l. 19s. |
| 6. 71671 original Stock. | 16. 97 cwt. 3 qrs. 10 lb. |
| 6. 366318. | 17. 4189l. 10s. |
| 7. 40077453600 Yards. | 18. 382l. 1s. 10d. |
| 8. Sum 15438, Product | 19. 14051l. 10s. |
| 59526317 | 20. 7335l. |
| 9. Danube greater 3570 | 21. 136l. 10s. 5d. |
| Feet. | 22. 887l. 15s. |
| 10. 721. | |

51. Sect. 10. D I V I S I O N.

No.	£.	s.	d.	No.	£.	s.	d.	No.	£.	s.	d.
2.	2	10	6	7.	83	0	8 $\frac{3}{4}$	15.	0	5	4 $\frac{1}{2}$
3.	0	7	8 $\frac{1}{2}$	8.	4	4	0	16.	2	17	7 $\frac{1}{4}$
4.	1	4	6	9.	0	5	3	17.	2	14	6
2.	0	3	0 $\frac{1}{2}$	10.	1	10	0 $\frac{1}{4}$	18.	2	4	6 $\frac{3}{4}$
3.	1	16	1	11.	1	9	0 $\frac{7}{10}$	19.	2	0	5
4.	4	10	7	13.	3	4	6	20.	101	1	9 $\frac{1}{2}$
5.	0	15	8 $\frac{1}{2}$	14.	3	4	4 $\frac{3}{4}$	21.	51	10	2
6.	2	9	3 $\frac{1}{4}$								

Q U E S T I O N S.

- | | |
|--------------|---------------------------|
| 1. 22£. | 5. 72. |
| 2. 28 Miles. | 6. 3986138884. |
| 3. 137. | 7. Diff. 132, Pro. 28044, |
| 4. 61. | Quo. 2 $\frac{3}{5}$. |

- | | | | |
|-----|---|-----|--------------------------------------|
| 8. | 1225 Yards. | | comes to 16d. which |
| 9. | 12 Men. | | costs me 20d. conse- |
| 10. | 4 cwt. | | quently lost 4d. |
| 11. | 1735. | 24. | 442l. 10s. |
| 12. | A. 360, B. 231, C. 409. | 25. | 11s. 1d. |
| 13. | A. $117\frac{1}{3}$, B. $80\frac{1}{3}$, C. $52\frac{1}{3}$. | 26. | The Father no doubt |
| 14. | 355. | | was an Accomptant. |
| 15. | $166\frac{52}{7}$. | | cwt. qr. lb. |
| 16. | L. 2450, M. 2815, N. | 27. | Greater wt. 5 3 2 |
| | 3235 and O. 1500l. | | Least 4 0 14 |
| 17. | Sum of Sq. 3341, Cu. | | £. s. d. |
| | of diff. 1331. | | Value { 53 5 $4\frac{1}{2}$ |
| 18. | Diff. of Sq. 49696875. | | 44 12 $1\frac{1}{2}$ |
| 19. | As 4 to 1. | 28. | A. 6l. 7s. 3d. B. 7l. 2s. |
| 20. | A. $414\frac{2}{3}$, B. $486\frac{2}{3}$. C. | | 9d. C. 9l. 9s. 3d. |
| | $598\frac{2}{3}$. | 29. | Lost 18l. 11s. 4d. |
| 21. | 5000l. | 30. | 1421l. 7s. 6d. |
| 22. | Rem. 4631 more. | 31. | A and B 2l. 9s. $\frac{1}{2}$ d. |
| 23. | There were twenty- | | C and D 1l. 18s. E 2l. |
| | penny worth more of | | 1s. 1d. |
| | the last Sort than of | 32. | Daug. 1127l. 7s. 1d. $\frac{1}{4}$. |
| | the first the Rem. at | | Son |
| | the selling Price | | |

Sect. 11. REDUCTION.

58

- | | | | |
|-----|-----------------------------|-----|------------------------|
| 3. | 77567 far. | 16. | 24 Guineas. |
| 4. | 17l. 12s. $6\frac{1}{4}$ d. | 17. | 15552q. |
| 5. | 52813 half pence. | 18. | 10 Moidores. |
| 6. | 42l. 16s. $4\frac{1}{2}$ d. | 19. | 7200d. |
| 7. | 12904 two pences. | 20. | 84l. |
| 8. | 44l. 11s. 4d. | 21. | 1500d. |
| 9. | 548 three pences. | 22. | 420 Crowns. |
| 10. | 34l. 15s. 6d. | 23. | 6000d. |
| 11. | 632 four-pences. | 24. | 20d. |
| 12. | 64l. 6s. 4d. | 25. | 503 of each. |
| 13. | 8034 six-pences. | 26. | 2400s. |
| 14. | 17. 17s. 6d. | 27. | 15l. 18s. |
| 15. | 21168 Farthings. | 28. | 348 Moidores 21s. over |
| | | A 3 | 20. |

29.	252l.	38.	2450 Florins.
30.	496l. 13s.	39.	745 Marks 5s.
33.	411l. 5s.	40.	1235 Dollars.
34.	141l. 15s.	41.	267 pift. 6d.
35.	135l. 4s. 4d.	43.	1594 Guin. 6s. over
36.	719l. 5s.	44.	393D. and 3s. 9½d. over

WEIGHTS, MEASURES, &c.

1.	80640 grs.	25.	22 yds.
2.	24lb.	26.	619 Nails.
3.	114670 grs.	27.	47 e1 Fl. 1 qr. 1 n.
4.	12 lb. 10 oz. 17 dwts. 14 grs.	28.	5376 Nails.
5.	25942 grs.	29.	129 pieces.
6.	6 Ingots.	30.	144 E. E.
7.	41lb. 6 oz. 11 dwts.	31.	12 Pieces 11 Yards.
8.	1 of each and 107204 grs. over.	38.	691 E. 1 qr.
9.	28112 grs.	39.	19200 Poles.
10.	10lb. 4 3, 6 3, 2 3, 14 grs.	40.	40 Miles.
11.	35840lb.	41.	3041280 b. c.
12.	12 Tons.	42.	18 Miles.
13.	2140167 drs.	43.	52462080 b. c.
14.	16 cwt. 2 qrs. 12lb. 8 oz.	44.	5622 times $\frac{18}{37}$
15.	17359 drs.	45.	4755801600 b. c.
16.	4698lb.	46.	10140 Poles.
17.	10 hhds.	47.	136 Acres.
18.	26 Fother.	48.	458 Shares 18 P. over
19.	120 Cannifters.	49.	16560 Perches.
20.	7 par. 3 qrs. 10½lb.	50.	4032 pts.
21.	13 of each and 10lb. over	51.	18 Tierces.
22.	36lb. common.	52.	1178 qts.
23.	80lb. great.	53.	11 hhds. 25 gall. 2 qts.
24.	444 nails.	54.	42 doz.
		55.	576 of each.
		56.	6 ———
		57.	3072 pts.
		58.	6 bar. 21 gall.
		59.	241 gall.

- | | | | |
|-----|-------------------------|-----|--------------------|
| 60. | 4180 pts. | 70. | 574 sacks |
| 61. | 10 hhds. 24 gal. 1 pt. | 71. | 537 ch. 6 sacks |
| 62. | 18 Bar. | 72. | 52,960 min. |
| 63. | 12 hhds. | 73. | 24 days |
| 64. | 10 of each 85 gal. over | 74. | 2360585 sec. |
| 65. | 156 gal. | 75. | 1893416259 thirds |
| 66. | 52 qrs. 4 bu. | 76. | 365 days 6 hours |
| 67. | 3399 bu. | 77. | 646127 days 6 ho. |
| 68. | 5760 pecks | 78. | 1050824 days 6 ho. |
| 69. | 132 cha. 10 sacks | | |

65

SECT. 12. RULE of THREE DIRECT. 65

- | | | | |
|-----|---|-----|---|
| 2. | 0 18 6 | 26. | 48l. 2s. |
| 3. | 2 5 0 | 27. | 6 of each |
| 4. | 52 0 0 | 28. | 11s. 7d. $\frac{186}{560}$ |
| 5. | 55 0 0 | 29. | 14s. 9d. $\frac{3}{4} \cdot \frac{847}{3387}$ |
| 6. | 9 12 0 | 30. | 90 ft. |
| 7. | 315 0 0 | 31. | 3 miles 6 fur. |
| 8. | 43 8 0 | 32. | 10. $\frac{1}{2}$ d. |
| 9. | 0 3 $7\frac{1}{4}$ $\frac{118}{266}$ | 33. | 1045 m. 3 fur. 9 p. $\frac{676}{1436}$ |
| 10. | 0 10 $3\frac{3}{4}$ | 34. | 2d $\frac{1}{2}$ $\frac{1}{2}$ |
| 11. | 0 1 8 | 35. | 2s $\frac{1}{2}$ d. |
| 12. | 154 5 4 | 36. | 42l. 10s. |
| 13. | 568 7 $7\frac{3}{4}$ $\frac{14}{46}$ | 37. | 68 m. 3 fur. 8 p. on
this side Edinburgh |
| 14. | 20 10 $3\frac{3}{4}$ | 38. | Anno 2900 |
| 15. | 0 13 $10\frac{3}{4}$ | 39. | 31l. 5s. $7\frac{1}{4}$ d. |
| 16. | 92 12 9 | 40. | 3864 yds. |
| 17. | $123\frac{1}{4}$ doz. | 41. | 13933920 reas |
| 18. | 1170 yards | 42. | B. rode 7 m. 1 fur. 20
pol. A. 9 m. 5 f. 20 p. |
| 19. | 6 pieces | 43. | 9l 11s. 9d. $\frac{1}{2}$ $\frac{2}{3}$ |
| 20. | 7 ing. 4 oz 12 dwts $\frac{6}{7}$ | 44. | 5 days 7 ho. 49 $\frac{13}{3}$ m. |
| 21. | 6 parcels and 2 qr. 3
lb. 10 oz. $\frac{18}{35}$ | 45. | 28 d. 3 h. 25 m. $\frac{5}{7}$ |
| 22. | 1 guinea | 46. | 530 feet 4 $\frac{87}{117}$ in. |
| 23. | 458l. 14s. 9d. | 47. | 116l. 18s. 10d. |
| 24. | 20 ing. 15 oz. 13 dwts | 48. | 2l. 12s. 6d. |
| 25. | cost 7965l. worth 14s.
9d. per yd | | |

- | | |
|---|--|
| 49. 34 ³ miles | 64. Dogs runs 336 r. har |
| 50. 48l. 8s. 2d. $\frac{2}{11}$ | 240 rods. |
| 51. 13 years 4 mon. | 65. d $\frac{3}{4}$ $\frac{12}{33\frac{1}{2}}$ |
| 52. 9 ⁶⁰ yds. and 12 E. E. | 66. 1877 br. $\frac{28}{36}$ |
| in each piece | 67. 10° 45' |
| 53. 1l. 18s. 5 $\frac{1}{4}$ d. $\frac{16}{20}$ | 68. 40 at first |
| 54. 320 yds | 69. 26" $1\frac{1}{23}$ " |
| 55. 118l. 10s. | 70. 13 m. 5 fu. 30 p. 5 yds |
| 56. 525l. | 71. 2072 lb. |
| 57. 6" 26" | 72. 27 in. |
| 58. 21 pieces and 5 E. over | 73. 281 lb. 4 oz. |
| 59. 92 m. 3 fur. 8 poles | 74. lesser 40 times greater |
| from Lond. 77 m. 4 | than the other |
| f. 32 p. from Ex. | 75. as 40 to 3. or as 13 to 1 |
| 60. 354 yds of shalloon at | 76. lesser to the greater as |
| 3s. 4d. $\frac{7438}{10443}$ per yd. | 1 to 6. |
| each | 77. the swifter to the |
| 61. 56 lb. 10 oz. 1 dr. $\frac{352}{72}$ | flower as 1 to 3 |
| 62. 7l. 4s. 6d. | 78. 1795 feet |
| 63. 9l. gain | 79. as 3 to 1. |

76

Sect 13. RULE of THREE INVERSE.

- | | |
|------------------------------------|---------------------------------------|
| 2. 36 Inches | 9. 106 $\frac{2}{3}$ yards. |
| 3. 13 mo. 19 $\frac{1}{2}$ d. | 10. 600 to depart |
| 4. 5 $\frac{1}{4}$ oz. | 11. 24 cocks |
| 5. 18 oz. | 12. 18 cwt. 2 qr. |
| 6. 458 yds 1 q. 1 n. $\frac{1}{3}$ | 13. 30 lb. 6 oz. 6 drs. $\frac{2}{3}$ |
| 7. 24 years | 14. 66666 feet 8 in. |
| 8. 72 weeks 6d | 15. 250 feet |

78

Sect. 14. CONTRACTIONS.

- | | | |
|------------|----------------------------|--------------|
| 2. 03 4 0 | 5. 8 0 0 | 8. 38 17 0 |
| 3. 463 0 0 | 6. 4 4 0 | 9. 48 in. |
| 4. 33 12 0 | 7. 7 3 9 $\frac{124}{472}$ | 10. 180 cwt. |

80

Sect. 15. RULE of FIVE.

- | | |
|--------------------|--------------------------------|
| 2. 4 bushels | 5. 73 cwt. 3 qrs. 19 lb. |
| 3. 21 d. 5 h. 20". | 8 oz. 2 drs. $\frac{148}{273}$ |
| 4. 313l. 6s. 8d. | 6. 6 $\frac{1}{2}$. |

Appendix.

9

- | | |
|--|--------------------------------------|
| 7. 4l. 19s. 10 $\frac{1}{4}$ d. $\frac{152}{1248}$ | 10. 3 m. 2 w. 4 d. $\frac{14}{1616}$ |
| 8. 500 men | 11. 88ol. |
| 9. 9 $\frac{15}{103}$ — | 12. 318 $\frac{8}{9}$ Poor. |

Sect. 16. R E P E A T E D.

82

- | | |
|---|-----------------------------|
| 2. 10 h. 8 m. 20" | 7. 43l. 12s. 6d. |
| 3. 24 lb. | 8. 53 $\frac{29}{100}$ days |
| 4. 117 $\frac{8}{10}$ in the first case | 9. work'd 156 days, play'd |
| 94 $\frac{3}{11}$ in the second | 234 |
| 5. 3 m. 48 $\frac{2}{3}$ " after 6 | 10. 170 days nearly |
| 6. 13l. 15s. | 11. idle 10-days work'd 30 |

Sect. 17. P R A C T I C E.

85

- | | | |
|---------------------------|---------------------------|-----------------------------|
| 1. 2 3 10 $\frac{3}{4}$ | 25. 55 15 7 $\frac{1}{2}$ | 50. 171 5 1 $\frac{1}{2}$ |
| 2. 3 1 3 | 26. 28 3 4 | 51. 151 11 8 |
| 3. 3 19 9 | 27. 49 2 1 $\frac{1}{2}$ | 52. 118 1 1 $\frac{1}{2}$ |
| 4. 7 6 10 | 28. 29 3 4 | 53. 147 19 0 |
| 5. 7 5 10 | 29. 50 0 6 | 54. 261 18 10 $\frac{1}{4}$ |
| 6. 15 7 9 | 30. 44 7 6 | 55. 247 12 0 |
| 7. 7 11 9 $\frac{3}{4}$ | 31. 21 15 3 $\frac{1}{2}$ | 56. 295 4 0 |
| 8. 20 15 0 | 32. 72 6 8 | 57. 82 16 0 |
| 9. 22 11 6 | 33. 58 8 9 | 58. 840 0 0 |
| 10. 6 13 4 | 34. 62 10 2 $\frac{1}{2}$ | 59. 137 0 0 |
| 11. 19 18 9 | 35. 27 6 1 $\frac{1}{4}$ | 60. 404 8 0 |
| 12. 9 6 6 | 36. 53 2 9 | 61. 1876 0 0 |
| 13. 19 3 9 | 37. 91 9 2 $\frac{1}{4}$ | 62. 213 12 0 |
| 14. 45 1 6 $\frac{1}{2}$ | 38. 58 8 6 | 63. 1140 6 0 |
| 15. 3 6 10 $\frac{1}{2}$ | 39. 71 10 0 | 64. 396 0 0 |
| 16. 33 6 8 | 40. 250 0 0 | 65. 760 18 0 |
| 17. 10 1 6 $\frac{1}{4}$ | 41. 108 6 6 | 66. 760 18 0 |
| 18. 23 7 3 | 42. 97 9 4 | 67. 642 3 0 |
| 19. 28 4 5 $\frac{1}{2}$ | 43. 58 9 8 | 68. 355 17 0 |
| 20. 57 1 8 | 44. 100 8 1 $\frac{1}{2}$ | 69. 173 11 0 |
| 21. 46 19 3 $\frac{3}{4}$ | 45. 228 1 8 | 70. 232 18 0 |
| 22. 15 8 11 | 46. 31 6 8 | 71. 1197 0 0 |
| 23. 41 16 7 $\frac{1}{2}$ | 47. 198 13 7 | 72. 484 0 0 |
| 24. 43 10 6 | 49. 109 4 7 | 73. 441 0 0 |

74

74.	396	16	8	88.	1492	14	0	101.	1838	15	8 $\frac{1}{4}$
75.	58	7	6	89.	262	16	0	102.	28043	10	5
76.	293	6	8	90.	262	14	0	103.	3884	8	7
77.	58	13	4	91.	4091	16	0	104.	123	16	8 $\frac{1}{4}$
78.	230	15	0	92.	1449	17	0	105.	811	10	8
79.	122	15	3 $\frac{1}{4}$	93.	12351	16	0	106.	28	4	1 $\frac{1}{2}$
80.	145	13	1 $\frac{1}{4}$	94.	9825	10	0	107.	282	2	1 $\frac{1}{2}$
81.	264	15	9	95.	1252	18	0	108.	52	5	10 $\frac{1}{2}$
82.	264	15	0 $\frac{3}{4}$	96.	2009	6	8	109.	113	14	1 $\frac{1}{2}$
83.	194	14	7	97.	1460	0	0	110.	657	6	7 $\frac{1}{4}$
84.	480	0	0	98.	881	1	8	111.	38	14	1 $\frac{1}{2}$
85.	1632	0	0	99.	21632	0	0	112.	3633	13	9 $\frac{1}{4}$
86.	300	0	0	100.	6375	12	0	113.	1	0	9 $\frac{1}{4}$
87.	5964	0	0					114.	0	19	11

94 Sect. 18. T R E T and T A R E.

cwt. gr. lb. oz.				cwt. gr. lb. oz.					
2.	114	2	17	0	11.	14	3	5	0 $\frac{2}{8}$
3.	22	2	7	0	12.	68	2	4	1
5.	22	'	14	0	14.	42	15	8	
6.	23	0	24	0	16.	12	3	5	11 $\frac{7}{8}$
8.	46	3	15	12	Qu. 1.	19s.	2 $\frac{1}{2}$ d.		
9.	50	1	21	7+	2.	6l.	18s.	9 $\frac{1}{4}$ d.	

101. Sect. 19. SIMPLE INTEREST.

2.	32	19	11	20.	1168	11	7 $\frac{1}{2}$	38.	498	6	8
3.	100	0	0	22.	403	13	0	40.	9 $\frac{1}{2}$	Years	
4.	716	12	6 $\frac{1}{2}$	23.	2557	3	5 $\frac{1}{4}$	41.	7 $\frac{3}{4}$	—	
5.	422	8	6 $\frac{1}{4}$	24.	1004	2	3 $\frac{1}{2}$	43.	4	per Cent	
7.	575	3	11 $\frac{1}{2}$	26.	15	8	3 $\frac{1}{4}$	44.	3	—	
8.	6	13	5 $\frac{1}{2}$	27.	362	15	8 $\frac{1}{2}$	45.	5516	11	6 $\frac{3}{4}$
9.	558	2	6	28.	729	12	6 $\frac{3}{4}$	46.	8	3	11 $\frac{1}{2}$
11.	18	11	3 $\frac{3}{4}$	30.	611	5	0	47.	25	13	2 $\frac{1}{2}$
12.	10	6	2 $\frac{3}{4}$	31.	177	17	2 $\frac{8}{4}$	48.	July the 7th		
14.	2	5	0	32.	217	13	0 $\frac{3}{4}$	49.	30 y.	4 $\frac{1}{2}$ d.	
15.	3	14	9 $\frac{1}{4}$	34.	349	14	8 $\frac{1}{4}$	50.	21	9s	6 $\frac{1}{2}$ d.
16.	24	9	9	35.	5	5	7 $\frac{1}{4}$	51.	25l.		
18.	264	9	0	37.	600	0	0	52.	132l.	2s.	1d.
19.	171	17	6								

Sect.

Sect. 20. COMPOUND INTEREST. //5

2. 182l. 9s. $1\frac{1}{2}$ d. | 42l. 5s. $1\frac{1}{2}$ d.

Sect. 21. REBATE or DISCOUNT. //7

2.	94	6	$9\frac{1}{2}$	} Reb. Pref.	7.	3138	8	11	
3.	{	19	7		$5\frac{1}{4}$	8.	10	4	$0\frac{1}{4}$
581		3	$3\frac{3}{4}$		9.	7	6	8	
23		9	$9\frac{1}{2}$		10.	112	10	0 adv. to int.	
5.	10	9	2		11.	11909	5	$1\frac{1}{4}$	
6.	535	6	8						

Sect. 22. EQUATION of PAYMENTS. //9

2.	4 Months 15 Days	}	5.	5 Months
3.	5 ——— 26 ———		6.	6 ———
4.	4 ——— 27 ———			

Sect. 23. SINGLE FELLOWSHIP. //21.

2. { C's gain is 347l. 3s. $8\frac{1}{2}$ d. Rem. 128
 D's ——— 368 17 8 72
 E's ——— 177 18 $7\frac{1}{2}$ 624

3. { A lost 46l. 15s. $0\frac{1}{4}$ d. Rem. 9
 B ——— 31 3 $4\frac{1}{2}$ 6
 C ——— 23 3 $6\frac{1}{4}$ 43
 D ——— 18 14 $0\frac{1}{4}$ 19

4. { D's gain 100l.
 F's ——— 160
 F's ——— 140

5. { A 715l. 12s. 10d. $\frac{45504}{67636}$
 B 458 2 $2\frac{1}{2}$ 45360
 C 644 1 $6\frac{3}{4}$ 360
 D 603 2 $10\frac{1}{4}$ 41086

6.	{	A	152l.	10s.	1 $\frac{1}{4}$ d.	Rem.	105
		B	114	7	6 $\frac{1}{4}$		423
		C	91	10	0 $\frac{3}{4}$		63
		D	76	5	0 $\frac{1}{2}$		282
		E	65	7	2 $\frac{3}{4}$		45
7.	{	A paid	267l.	5s.	5 $\frac{1}{4}$ d.		$\frac{7}{17}$
		B —	305	9	1		$\frac{4}{11}$
		C's part	$\frac{11}{56}$				
8.	{	A	68l.	12s.	6 $\frac{1}{2}$ d.		$\frac{6}{17}$
		B	48	0	9 $\frac{1}{4}$		$\frac{11}{17}$
9.	{	88 Ank. and 3s.	10d.	over			
		gained per Ank.	1l.	8s.	10 $\frac{1}{4}$ d.		$\frac{42}{88}$
10.	{	A's Stock	4l.	4s.	7d.		
		B's	2	9	7		
11.	{	C's Stock	190l.	19s.	6d.		
		A's gain	41	4	8 $\frac{1}{2}$		
		B's —	61	5	3 $\frac{1}{2}$		
12.	{	A's gain	94	15	4 $\frac{1}{2}$	$\frac{6}{13}$	
		B's —	59	4	7 $\frac{1}{4}$	$\frac{7}{13}$	
13.	{	A's Share	11s.	3d.		$\frac{180}{269}$	
		B's —	6	6 $\frac{3}{4}$		$\frac{225}{269}$	
		C's —	12	1 $\frac{3}{4}$		$\frac{133}{269}$	
14.	{	Malt per Bushel	4s.	9 $\frac{1}{4}$ d.		$\frac{57}{63}$	
		Meal	3	2 $\frac{1}{4}$		$\frac{17}{63}$	
		Catmeal	1	7		$\frac{40}{63}$	
15.	{	A's Share	123l.	1s.	6 $\frac{1}{4}$ d.	$\frac{121}{143}$	
		B's	163	12	8 $\frac{1}{2}$	$\frac{130}{143}$	
		C's	107	4	6 $\frac{1}{2}$	$\frac{9}{143}$	
		D's	6	1	2 $\frac{1}{2}$	$\frac{25}{143}$	
16.		Widow	534l.	2s.	8d.	nearly.	

Sect. 24. DOUBLE FELLOWSHIP.

123.

2.	{	Officers each	263l.	3s.	1 $\frac{3}{4}$ d.	704
		Midshipmen	421	1	0 $\frac{1}{2}$	640
		Sailors	3315	15	9 $\frac{1}{4}$	1088

3.	{	A paid	17l.	2s.	10 $\frac{1}{4}$ d.	$\frac{8}{58}$
		B —	14	5	8 $\frac{1}{2}$	$\frac{18}{58}$
		C —	8	11	5	$\frac{32}{58}$
	{	X's gain	93l.	6s.	8d.	
		Y's —	140	0	0	
		Z's —	116	13	4	
4.	{	X's stock	549	18	8 $\frac{1}{2}$	$\frac{112}{1738}$
		Y's —	1237	7	1	$\frac{1120}{1738}$
		Z's —	2474	14	2 $\frac{1}{4}$	$\frac{504}{1738}$
	{	A's gain	156	11	5	$\frac{920}{1058}$
		B's —	193	18	3	$\frac{532}{1058}$
		C's —	100	11	3 $\frac{1}{2}$	$\frac{644}{1058}$
5.		B's adventure	229	13	11	
6.						
7.	{	A's } adventure	18	3	6	
		B's }	30	13	5	
		C's }	52	6	10 $\frac{1}{4}$	
8.		13l.	6	9 $\frac{3}{4}$	$\frac{163}{207}$	
9.	{	A's Stock	168l.			
		B's —	70			
10.	{	B's Share	4	0	7 $\frac{1}{4}$	$\frac{297}{387}$
		A's —	3	9	4 $\frac{1}{2}$	$\frac{90}{387}$

Sect. 25. B A R T E R.

126

2	33 $\frac{1}{4}$ yds.	9.	420 Bul.
3.	2l. 5s. per cwt. 46 cwt.	10.	25s. real Value, 72
	2 qrs 18 $\frac{2}{3}$ to.		lb. Quantity delivered
4.	1s. 9d. $\frac{3}{17}$	11.	12l. 10s. advantage to B.
5.	5l. 19s. 0 $\frac{1}{2}$ d. $\frac{2}{7}$	12.	Discount allowed 40l.
6.	7l. 9s. 2 $\frac{1}{2}$ d. $\frac{16}{31}$ in A's favor		6s. 6 $\frac{3}{4}$ d. $\frac{3}{7}$ B. the advantage by 41l. 7s.
7.	4 $\frac{3}{4}$ d. $\frac{3}{32}$		4 $\frac{3}{4}$ d. $\frac{2}{7}$
8.	200 Sacks B. gained	13.	16l. 2s. 1 $\frac{1}{2}$ d.
	33l. 6s. 8d.		

b

Sect.

129 Sect. 26. LOSS and GAIN.

- | | |
|--|--|
| 2. 1s. $\frac{3}{4}$ d. $\frac{5}{34}$ per lb. | 11. 2l. 2d $\frac{3}{4}$. |
| 3. 23l. 10s. 7d. $\frac{1}{7}$ | 12. 19l. 10s. 11 $\frac{1}{4}$ d. $\frac{1}{980}$ |
| 4. 35l. per Cent. | 13. 15 $\frac{3}{4}$ d. $\frac{7}{8}$ $\frac{5}{90}$ |
| 5. 23l. 12s 6d. | 14. Spoiled 15 $\frac{1}{3}$ lb. cost |
| 6. 20l. per Cent. | 17l. 15s 8 $\frac{1}{2}$ d. $\frac{1}{37}$ |
| 7. 3l. 1s. 9 $\frac{3}{4}$ d. | 15. 96l. 7s. 3 $\frac{1}{4}$ d. $\frac{1}{41}$ |
| 8. 26l. 16s. loss | 16. 4s 4d. $\frac{3}{8}$ |
| 9. 57l. 17s. 10 $\frac{1}{2}$ | 17. 12s. 2d. $\frac{6}{32}$ $\frac{2}{23}$ |
| 10. 23l. 8s. 0 $\frac{1}{4}$ d. $\frac{3}{8}$ | |

131 Sect. 27. ALLEGATION MEDIAL.

- | | |
|--|--|
| 2. 6s. 4 $\frac{1}{8}$ d. per Gallon. | 6. 36s. 11d. $\frac{1}{3}$ per Quarter |
| 3. 8s. per lb. | 7. 6s. 2 $\frac{1}{4}$ d. $\frac{5}{37}$ per Gallon. |
| 4. 20 $\frac{1}{2}$ carraet fine | 8. 9 oz. fine |
| 5. 12 $\frac{1}{2}$ d. $\frac{5}{138}$ per lb. | 9. 16 $\frac{1}{2}$ d. $\frac{1}{43}$ |

199 Sect. 28. ALLIGATION ALTERNATE.

2. 18 at 6s. 24 at 3s. 6d. 24 at 3s.
- | | | | | | | | |
|-----|-----|-----|-----|-----|-----|----|-----|
| lb. | lb. | lb. | lb. | lb. | lb. | s. | d. |
| 6 | 24 | 30 | 30 | 6 | 30 | 24 | 4 0 |
3. 24 or 48 or 36 or 6 or 84 or 24 or 48 or 30 or 84 or 30 or 36 at 5 0
36 48 48 84 36 84 84 10 0
4. 12 at 3s. 12 at 4s. 6d. 12 at 4s and 42 at 6s. per Bu.
5. 3 of 18, 7 of 23, 3 of 19, and 3 of 16 carraets fine
- | | | | | | | | |
|----------------|-------------------|-------------------|----------------|----------------|-------------------|-------------------|-------------------|
| $1\frac{1}{2}$ | 1 | $1\frac{1}{2}$ | $2\frac{1}{2}$ | $1\frac{1}{2}$ | 1 | $2\frac{1}{2}$ | 10d. |
| 6. 1 | 2. $1\frac{1}{2}$ | 3. $2\frac{1}{2}$ | 4. 1 | $1\frac{1}{2}$ | 6. $2\frac{1}{2}$ | 7. $2\frac{1}{2}$ | at $7\frac{1}{2}$ |
| $1\frac{1}{2}$ | 4 | $1\frac{1}{2}$ | $5\frac{1}{2}$ | 4 | $5\frac{1}{2}$ | $5\frac{1}{2}$ | 5 $\frac{1}{2}$ |
| 4 | $1\frac{1}{2}$ | $5\frac{1}{2}$ | 4 | 4 | $5\frac{1}{2}$ | $5\frac{1}{2}$ | $4\frac{1}{2}$ |
- per lb.
7. 12lb. at 4d. 12 at 5d. 16 at 7d. 16 at $7\frac{1}{2}$ d. and 16 lb. at 8d.

Sect.

Sect. 29. ALLEGATION PARTIAL. 135

2. 28 at 84, 112 at 96, 56 at 66 and 112 at 48d.
3. 96 at 78, 24 at 80, 32 at 9s. and 36 at 12s.
4. 60 of 16, 60 of 18, 270 of 22 carracts fine
5. $23\frac{1}{3}$ lb.

Sect. 30. ALLEGATION TOTAL. 136

10. 14 at 3, 28 at 4, 42 at 7 and 28 at 8d.
11. $2\frac{6}{8}$ at 4s. $2\frac{6}{8}$ at 5s. 6d. $2\frac{6}{8}$ at 8s. and $27\frac{5}{8}$ at 6s.
12. 15 of 16, 15 of 18 and 30 of 23 Carracts fine.
13. Either 42lb. of each, or else 28lb. of those at 8s. and 6s. with double that quantity of the other two sorts: and in truth, as many Answers may be found to this Proportion, as there are different ways of alligating properly the Prices of the Goods proposed.

Sect. 31. EXCHANGE. 137

- | | |
|---|--|
| 3. 145l. 7s. $7\frac{1}{2}$ d. | 22. 328l. 16s. $11\frac{3}{4}$ d. $\frac{21}{12}$ |
| 4. 640 cr. 12 So. 8 Den. | 23. 564l. 10s. 6d. |
| 6. 856l. 6s. 8d. | 24. 421l. 2s. $3\frac{1}{2}$ d. |
| 7. 3670 pieces of $\frac{8}{3}$ | 25. 4200 guil. 12 flie. 8 pe. |
| 8. 322l. 9s. $4\frac{1}{4}$ d. | 26. 145 gul. 1 fliv. |
| 9. 1426 pieces 4 re. 26 m. | 27. 472 gul. 5 fliv. 12 pe. $\frac{9}{11}$ |
| 10. 138l. 13s. 4d. | 28. 508 gul. 1 fliv. 4 a. $\frac{6}{13}$ |
| 11. 640 Dollars | 29. 935l. 4s. $2\frac{1}{2}$ d. |
| 12. 107l. 6d. | 30. 312l. 1s. $6\frac{1}{4}$ d. $\frac{96}{160}$ |
| 13. 4260 Ducats | 31. 5850 Flor. |
| 14. 1710l. 16s. 4d. | 32. 1234l. 2s. $8\frac{1}{4}$ d. |
| 15. 8644 Pez 2s 6d. | 33. 661l. 7s. $2\frac{3}{4}$ d. |
| 16. 119018l. 8s. 4d. lire Money | 34. 729l. 19s. 1d. |
| 17. 215l. 3s. $\frac{1}{4}$ d. $\frac{31}{120}$ | 35. 889l. 5s. $4\frac{1}{2}$ |
| 18. 1269l. 6s. 8d. | 36. 1547l. 18s. $11\frac{1}{2}$ d. |
| 19. 5873 milr. 750 reas | 37. Remitted 424l. 1s. $\frac{1}{2}$ d. gained per Cent 6l. 12s. $3\frac{1}{4}$ d. |
| 21. 671l. 19s. 3d. $\frac{1}{300}$ | |

- | | |
|---|---------------------------------|
| 38. 2007l. 8s. 3d. | 42. 33s. 2d. $\frac{14}{109}$ |
| 39. 15d Sterling for a 1000 reaf | 43. 34s. per £ Sterling |
| 40. A. gained $15\frac{1}{2}\frac{3}{4}$ Crowns | 44. 10l. 19s. $1\frac{1}{2}$ d. |
| 41. $33\frac{2}{3}\frac{1}{2}$ Sol. Lub. p. Flor. | 45. 1 cr. 18 fol. 8 den. |

Sect. 32. Comparison of WEIGHTS and MEASURES.

- | | |
|---------------------------|--------------------|
| 2. 73 lb. | 5. $60\frac{1}{2}$ |
| 3. 75 Yards | 6. $46\frac{2}{3}$ |
| 4. $30\frac{1}{2}$ Canes. | |

Sect. 33. P O S I T I O N.

- | | |
|---|--|
| 3. C 7, A 11, B 27 | 15. 72 Inches |
| 4. and 45 Ben. 138 Chr.
286 Miles | 16. 7 |
| 5. A 229,4444, B. 757,3055
C 1013,25 | 17. his Age 45 hers 15 |
| 6. 32,727 minutes | 18. 14 Beggars. |
| 7. 2400 Men | 19. $5\frac{1}{2}$ d. |
| 8. 5483l. 17s. 5d. $\frac{1}{11}$ | 20. 17 |
| 9. 108 Scholars | 21. A 5, B 7 |
| 10. $5\frac{1}{2}$ d. | 22. Father 53, Son 18 |
| 11. $5\frac{1}{2}$ d. | 23. A 800, B 600 |
| 12. A. got 40, B. 56 and C.
16 | 24. 35 greater, 15 lesser |
| 13. 100 | 25. idle 234, worked 156 |
| 14. Father 70, Son 14 | 26. 36 his Age |
| | 27. first $33\frac{1}{3}$, sec. 50 trap.
$16\frac{2}{3}$ |

Sect. 34. ARITHMETICAL PROGRESSION.

- | | |
|--|---------------|
| 2. 78 Strokes | 7. 3 miles |
| 3. 1 m. 5 fur. 21 poles $3\frac{1}{2}$
feet | 8. 5l. |
| 4. 5 m. 5 fur. 36 po. 2 yds | 10. 19 Days |
| 5. 500l. | 12. 5 Guineas |

14. Him from Lon. { 6 first
8 second
10 third
12 fourth
14 fifth } Days Journey.

Him from Eden { 8 first
11 second
14 third
17 fourth }

16. 199

18. { 4 first
11 $\frac{1}{3}$ second
18 $\frac{2}{3}$ third
26 fourth
33 $\frac{1}{3}$ fifth
40 $\frac{2}{3}$ sixth
48 seventh
55 $\frac{1}{3}$ eighth
62 $\frac{2}{3}$ ninth } Days Journey.

	L.	y.	d.	Rem.
A	27	6	0	648
B	27	18	0	504
C	28	10	0	360
D	29	2	0	216
20. E	29	14	0	72
F	30	5	11	929
G	30	17	11	785
H	31	9	11	641
I	32	1	11	497
K	32	13	11	358 1601

Short of the present Undertaking 417 $\frac{1}{2}$ Miles.

21. 1778

Sect. 36. GEOMETRICAL PROGRESSION.

2. 4473924l. 5s. 3 $\frac{1}{2}$ d. | 8. 45211l. 4s. 5 $\frac{1}{2}$ d. $\frac{1}{2}$ a
4. 28821l. 10s. 4 $\frac{1}{2}$ d. 75 | very ample reward
6. 27l. 6s. 1 $\frac{1}{2}$ d. $\frac{28}{100}$ | 10. 72 Miles.
7. 36159l. 1d.

b 3

Sect.

166

Sect. 57. PERMUTATION.

1. 13 Years, 291 Days
2. 45 Years, 6 Months, 3 Weeks and 18 Hours
3. 9d. $\frac{180}{1614}$

Sect. 38. REDUCTION of VULGAR FRACTIONS.

- | | |
|---|--|
| 2. $\frac{179}{803}$ | 37. $\frac{12}{31}$ |
| 3. $\frac{9}{33}$ | 38. $\frac{1}{1728}$ |
| 4. $\frac{4}{7}$ | 39. $\frac{11}{336}$ |
| 5. $\frac{246}{213}$ | 40. $\frac{3}{4}$ |
| 7. $\frac{7}{8}$ | 41. $\frac{1}{288}$ |
| 8. $\frac{8}{27}$ | 42. $\frac{3}{4}$ |
| 9. $\frac{1}{3}$ | 43. $\frac{3}{114638}$ |
| 10. $\frac{2}{7}$ | 44. $\frac{25}{3}$ |
| 11. $\frac{1}{3}$ | 45. $\frac{224}{3}$ |
| 12. $\frac{1}{8}$ | 46. $\frac{11}{756}$ |
| 18. $\frac{30}{7}$ | 47. $\frac{89}{36}$ |
| 19. $\frac{33}{2}$ | 48. $\frac{12}{71}$ |
| 20. $\frac{328}{23}$ | 49. $\frac{864}{5}$ |
| 21. $\frac{5423}{37}$ | 50. $\frac{2116800}{71}$ |
| 22. $10\frac{1}{2}$ | 51. $\frac{1}{1384}$ |
| 23. $142\frac{17}{23}$ | 53. 7s. $7\frac{1}{2}$ d. |
| 24. $146\frac{21}{37}$ | 54. 8s. 9d. |
| 26. $\frac{364}{3392}, \frac{2268}{2392}, \frac{1440}{2592}$ and | 55. $7\frac{1}{2}$ d. |
| 27. $\frac{360}{480}, \frac{446}{480}$ and $\frac{316}{480}$ | 56. 2l. 17s. $7\frac{1}{2}$ d. |
| 28. $\frac{660}{2880}, \frac{720}{2880}, \frac{576}{2880}$ and | 56. 14s. $3\frac{1}{2}$ d. $\frac{5}{7}$ |
| 29. $\frac{360}{720}, \frac{240}{720}, \frac{180}{720}, \frac{144}{720}$ and | 57. 6 oz. 17 dwt. |
| 30. $\frac{400}{480}, \frac{336}{480}, \frac{360}{480}$ and $\frac{240}{480}$ | 58. 3 qrs. 3 lb. 1 oz. 12 |
| 31. $\frac{1}{2}$ | dis. $\frac{4}{9}$ |
| 32. $\frac{2}{3}$ | 59. 10 cwt. 0 qrs. 18 lb. 1 |
| 33. $\frac{2}{3}$ | oz. $\frac{1}{31}$ |
| 34. $\frac{1}{28}$ | 60. 7 furlongs. |
| | 61. $3\frac{1}{8}$ qrs. |
| | 62. 3 Roods, 20 Poles |
| | 63. 2 gall. 3 qr. |
| | 64. 28 gallons |
| | 65. 12 bush. 2 pecks |

Appendix.

29

66. 1 week, 3 days, 12 hours
 67. 17 hours, 8 min. $34\frac{2}{3}$ sec.
 69. $\frac{9}{24}$ halfpence.
 70. $\frac{4}{5}$
 71. $\frac{78}{100}$
 72. $\frac{1103}{1020}$
 73. $\frac{200725}{238048}$
 74. $\frac{441}{868}$

75. $\frac{5}{8}$
 76. $\frac{3}{5}$
 77. $\frac{3}{5}$
 78. $\frac{81}{100}$
 79. $\frac{2}{3}$
 80. $\frac{7}{9}$
 8. $\frac{29}{72}$
 82. $\frac{27}{24}$
 83. $\frac{116}{219}$

Sect. 39. ADDITION.

176

2. $1\frac{43}{84}$
 3. $3\frac{20}{20}$
 4. $1\frac{2}{5}$
 5. $\frac{63}{84}$
 6. $7\frac{1}{4}$
 8. $24\frac{1}{6}$
 9. $53\frac{10}{20}$
 11. $\frac{1631}{2680}$ or
 8s. $10\frac{11}{488}$

12. $\frac{2}{3}$ or 3 oz. 7 dwts. 12 grs.
 13. $\frac{211}{336}$ or 2 qrs. 14 lb. 5 oz. 5 drs. $\frac{2}{3}$
 14. $\frac{10}{8}$ yd. or 1 yd. 1 qr.
 15. $\frac{2208}{2640}$ or 6 fur. 264 yd. 1 ft.
 16. $\frac{102}{288}$ ch. or 13 bu. 2 p. 1 g.
 17. $\frac{40}{48}$ m. or 1 mo. 14 ho.
 18. $\frac{141}{224}$ w. or 4 d 9 h 45 m.
 19. $\frac{82007}{1400}$ or 9l. 8s. 8d. $\frac{2}{35}$

Sect. 40. SUBTRACTION.

177

2. $\frac{73}{108}$
 3. $\frac{112}{832}$
 4. $\frac{35}{187}$
 5. $\frac{41}{160}$
 6. $\frac{1}{4}$
 7. $3\frac{13}{12}$
 8. $1\frac{5}{84}$

9. $11\frac{87}{192}$
 10. $\frac{298}{48}$ or $7\frac{1}{2}$ d.
 11. $\frac{7159}{21504}$ cwt. 1 qr. 9 lb. 4 oz. 9 drs. $\frac{2}{3}$
 12. $\frac{71}{96}$ yd. or 2 ft. 2 in. $\frac{5}{8}$
 13. $\frac{71}{162}$ cha. or 13 bu. 1 pk. 1 qt.
 14. $\frac{77}{96}$ d. or 19 h. 15 m.

Sect. 41.

Sect. 42.

Sect. 43.

Sect. 44.

180

2. $\frac{7}{22}$
 3. 75
 4. $15\frac{2}{5}$
 5. $1\frac{103}{128}$
 6. $133\frac{7}{8}$
 7. $\frac{15}{22}$
 8. $2\frac{5}{8}$
 9. $\frac{33}{140}$

2. $1\frac{3}{7}$
 3. $\frac{24}{77}$
 4. $\frac{75}{106}$
 5. $3\frac{31}{105}$
 6. $\frac{105}{768}$
 7. $\frac{51}{63}$
 8. $\frac{43}{73}$
 9. $\frac{105}{239}$
 10. $\frac{75}{105}$
 11. $\frac{8}{10}$

2. 71 10s
 3. 15 10 9
 4. 7 10 10 $\frac{11}{47}$
 5. 283 11 0 $\frac{12}{5}$
 6. 1127 12 8 $\frac{1}{2}$
 7. 46 9 8 $\frac{14}{27}$
 8. 18 $\frac{1}{5}$ Ells in
 each Piece

2. 15m. 3w. $4\frac{11}{29}$ d
 3. $4\frac{1}{4}$ hours
 4. 7s. 2d. $\frac{3}{4}$
 5. 175l. 1s. $5\frac{1117}{2207}$
 6. 17y. 1q. $3\frac{11}{27}$ n.

Sect. 45.

181

2. 45l. 13s. 9d.
 3. 6 cwt. 21 lb.
 4. 2 w. 1 $\frac{765}{242}$ d.
 5. 600 men.
 6. $\frac{252}{435}$ qr.

Q U E S T I O N S.

- | | |
|---|--|
| 2. 99 ² ₉ | 16. 1284l. 18s. 5 ¹ / ₂ d. |
| 3. 2 ⁶⁶⁰¹ ₇ | 17. 16093l. 6s. 8d. |
| 4. 6 ³¹¹ ₅₀₁₆ | 11. 150l. |
| 5. 4 ⁹⁰⁵³²⁸ ₁₀₈₂₀₇ | 19. 1750l. |
| 6. 9 ²⁶⁶ ₅₁₃₆₉ | 20. 19 min. 4 ⁴ / ₉ sec. |
| 7. 15223l. 18s. 10 ⁷ / ₄ d. ⁴⁰ / ₉₂ | 21. 60 crowns |
| 8. 800l. | 22. 600 trees |
| 9. 534l. 2s. 8d. | If the Number were 26880 |
| 10. 1538l. 12s. 11 ¹ / ₄ d. ²⁵⁶ / ₄₁₁ | Remained with A. is 2863 |
| 11. 575 ⁵³ / ₄ nuts. | _____ B. 6335 |
| 12. 11000l. | _____ C. 2438 |
| 13. 4337l. 15s 6 ¹ / ₂ d. ² / ₃ | _____ D. 10294 |
| 14. 9734l. 3 ¹ / ₄ d. ⁸³ / ₂₂₅ | _____ E. 4950 |
| 15. 81 ³ / ₅ | |

199. REDUCTION of DECIMALS.

- | | |
|------------------------|---|
| C A S E I. | 13. .02743 |
| 2. .5 | 14. .05 |
| 3. .175, 125 and .0625 | 15. .125 |
| 4. 20833+ | 16. .2 |
| 5. .3125 | 17. .032876 |
| 6. 57142 | C A S E III. |
| 7. .66666 | 2. 6s. 9d. |
| 8. .328125+ | 3. 9s. 5 ¹ / ₄ d. .6 |
| 9. 10416+ | 4. 19s 7 ¹ / ₂ d. .29 |
| C A S E II. | 5. 14 grs. |
| 2. .3375 | 6. 6 cwt. 3 qrs. |
| 3. .42857 | 7. 10 drs. .1076 |
| 4. .53858 | 8. 3 qrs. 14 lb. |
| 5. .91875 | 9. 6 in. |
| 6. .00125 | 10. 6 fur. 4.64 p. |
| 7. .04583 | 11. 18 gal. |
| 8. .03906 | 12. 28 gal. |
| 9. .875 | 13. 8 perches |
| 10. .16666 | 14. 4 bu. 2 pks. |
| 11. .25 | 15. 11 lb. 26' 9" 6 |
| 12. .29365 | |

SQUARE

200 S Q U A R E R O O T. 200.

2. 246
3. 87.51 nearly
4. 6270.38+
5. 90607.2179
6. .02715+
7. 1.4142+
8. 1.507015
9. 6.0005
12. $\frac{5}{8}$
13. $\frac{5}{8}$
14. $3\frac{2}{7}$
15. $\frac{4}{7}$
16. $1\frac{1}{2}$
17. $5\frac{1}{4}$
17. 2.9031+
18. 91583+
19. 8.7649+

The Use.

2. 91.148 nearly
4. 215 yds. 1 ft. 5 in. 467
5. 12.649
7. $55\frac{1}{2}$ yds. nearly
9. 57.08 ft.
10. 42 ft. 5 in.
11. 17 ft. 7.08 in.
12. 97 lea. 2 m. 2 f. 3.84p
13. 83 ft. 8 in.
14. 26 ft. 3 in. nearly
15. 157 ft
16. 6.017 inches
17. 118 yards, 1 foot, $2\frac{1}{2}$ inches

C U B E R O O T. 207.

2. 45208,68465
3. 1395263+
4. 4,497+
5. 3018,2+
6. 20,6+
7. 33,066+
8. 80.138+
9. 6031+
10. 145.929+

11. ,07499+
12. 303,74+
13. $3\frac{1}{3}$
14. $1\frac{1}{3}$
15. $1\frac{1}{5}$
16. $7\frac{2}{5}$
17. 1,7756+
18. 1,1975+

The USE of the C U B E R O O T. 209

1. 784 the content
2. 180,28 keel
36,05 beam
21,6 depth in the hold
3. 99,202 keel
19,84 beam
11,06 hold

4. 90 nearly
5. 7,4+
6. 5942,5697 lb. +
7. 21 the lesser
63 the greater
8. 16 the lesser
64 the greater

R U L E

212. RULE of THREE in DECIMALS.

- | | |
|----------------------------------|---|
| 2. 71 7s 6d | 10. 8.5 } miles { London |
| 3. 1011 8s 10d | 2.5 } from { Chertsey |
| 4. 14s $\frac{3}{4}$ d 6.5 | 11. |
| 5. | 12. 63241 r1d |
| 6. 1 ft 7.168 inches | 13. four times hotter |
| 7. 5 88 | 14. 57275649 miles. |
| 8. 16,555 gal. | 15. as 27 4 to 1 |
| 9. 4 cwt 1 qr 9 lb | 16. as 589,584 to 1 nearly |
| 10. 195 their Sum | 17. by 13225 degrees. |
| 45 their Diff. | 18. 618 miles, 6 fur. 16 po. |
| 8755 Prod. of their Sum | 3 yds. 1 ft |
| and diff. | 19. 187.48 ft. |
| 20025 Sum of those Squ. | 20. 9351 $\frac{1}{2}$ miles from its |
| .625 Quote of the less | surface |
| div. by the greater | 21. 15 oz. 9 $\frac{4}{8}$ $\frac{2803}{31249}$ |
| 1.6 its Square | 22. 40.117 more matter |
| .390625 its Square | than the Moon |
| 2.950625 the Sum of those | 23. the proportion of light |
| Squares. | and heat a new moon |
| 11. 176400 Square of their | hath to that of a full |
| Sum | one is, as 1 to 9882, or |
| 784 Square of their | as 458329 to 452929, |
| diff | in whole Numbers. |
| 1 $\frac{1}{4}$ Sq. of the quote | 24. 1936 ft |
| of the gr. — less | 25. 1024 ft |
| $\frac{49}{24}$ Sq. of the quote | 26. 1019 fat. 1 ft, |
| of the less — gr | 27. 5 sec. |
| 11788 Prod. of their | 28. 18' 55" 3" |
| Sum and Diff. | |
| added to their | |
| difference | |
| 138956944 its Square. | |

217 DOUBLE RULE of THREE in DECIMALS.

1. 7l. 2s. 5d $\frac{1}{2}$. 9+
2. 144l. 10s. 8 $\frac{1}{2}$ d.
3. 170 days nearly

4. 10.8309505 days by all together

47.848	by	A
38.969		B
27.194		C
111.170		D

5. $172\frac{1}{2}$ feet run, $58\frac{1}{2}$ seconds

VIBRATIONS OF PENDULUMS. 217.

1. 12 ft. 3 in.
2. 2695.08 Vib.
3. 6036.8
4. In a Third 653 in. Second 392 in. Minute 196 ft. Hour $2\frac{5}{8}$ Mil. Day $53\frac{5}{8}$ Miles.
5. 403.6932 feet

FELLOWSHIP. 218.

- Ex. 3. Moll 91l. 11s. $4\frac{1}{4}$ d. Ann 72l. 19s. $10\frac{1}{4}$ d. and Nell 65l. 2s. $\frac{1}{2}$ d.

SIMPLE INTEREST. 220.

- | | |
|----------------------------------|--------------------------------------|
| 2. 64l. 11s. $3\frac{1}{4}$ d. 1 | 16. 378l. 16s. $5\frac{1}{2}$ d. 458 |
| 3. 20 3 3 | 17. 78 0 $4\frac{1}{2}$ 9 |
| 4. 256 13 4 | 18. 3 Years |
| 5. 103 16 $4\frac{1}{2}$ 748 | 19. $5\frac{1}{2}$ Years |
| 7. 10 0 $11\frac{3}{4}$ 21 | 20. 4 Years 107.58 Days |
| 8. 23 9 $5\frac{3}{4}$ | 21. 7 yrs. |
| 9. 354 4 $0\frac{1}{2}$ | 22. $5\frac{1}{2}$ years |
| 10. 829 7 9-96 | 23. 6 years, 5 months |
| 11. 650 19 2-146 | 24. 5 7 |
| 12. 464 10 0 | 25. $4\frac{1}{2}$ 1 |
| 13. 260 0 0 | 26. 6 } per Cent |
| 14. 423 13 $9\frac{3}{4}$ 75 | 27. $3\frac{1}{2}$ 1 |
| 15. 284 10 0 | 28. 5 1 |
| | 29. $4\frac{3}{4}$ J |

The Examples in Sect. 62, 63, 64 and 65 prove each other.

51. 7 mo. 16 days+. 52. 18 45 days. 53. 5 per cent.

Note, the two last Examples are for Exercise.

COM.

235 COMPOUND INTEREST.

The Examples here prove each other.

QUESTIONS.

1.	5033l.	6s.	for 21 Years	A's offer better by above			
2.	460	14	$1\frac{3}{4}$	50	} than {	B's	
3.	289	6	$4\frac{1}{2}$ A's	100		C's	
	351	14	$9\frac{1}{2}$ B's	150		D's	
	138	11	$7\frac{3}{4}$ C's	5.	120	10	$11\frac{3}{4}$
4.	1950	12	4 A's offer.	6.	27	12	5
	1960	10	$3\frac{1}{4}$ B's	7.	366	16	$9\frac{1}{2}$
	1850	8	$2\frac{1}{2}$ C's	8.	177	11	$8\frac{3}{4}$
	1800	0	0 D's	9.	4823	18	$10\frac{1}{4}$

259 MENSURATION. PROBLEM I.

	ft.	"	'''	'''		ft.	"	'''	'''	'''
2.	301	4	8	0	0	7.	107	7	11	8 10
3.	121	6	6	7	3	8.	88557	4	0	10 8
4.	116	3	2	0	0	9.	214	5	1	5 11 4 1
5.	945	0	3	6	0	10.	297	7	4	6 2 10
6.	5229	9	3	0	0					

263 PROBLEM II, &c.

1.	141 a.	1 r.	20 p.	11.	21.9912 or 22
2.	12 a.	1 r.	24 p.	12.	7 nearly.
3.	330 yds.	4 ft.	6 in.	13.	25 132.8 miles.
4.	287 ac.			14.	3.14147+
5.	5l.	11s.	$6\frac{3}{4}$ d.	15.	113.0976
6.	10 ac.	3 r.	8 4 p.	16.	4.633848495
7.	78 yds.	1 ft.	1.5 in.	17.	1622.5
8.	4988	4 ft.		18.	23.1174
9.	2338.2684			19.	273.875
10.	2781.173952			20.	125.6
				21.	339 2928.

271 ARTIFICERS WORK.

1.	4l.	6s.	$10\frac{1}{2}$ d.	3.	8	9	0
2.	16	10	0	4.	6 square ft.		

- | | |
|-----------------------------|------------------------|
| 5. 27l. 16s 5½d. | 14. 166l. 10s. 3d. |
| 6. con 8 yd. 6 ft. 4 in. 6" | 15. 108 Planks + |
| comes to 2l. 12s. 3d. | 16. 21l. 12s. |
| 7. 159 ft. 6 in. | 17. 42 squares |
| 8. 5l. 15s. 8d. | 22l. 8s. amount |
| 9. 43l. 4s. 6¼d. | 18. 8l. 15s. 9½d. |
| 10. 3l. 7s. 1d. | 19. 32 r. |
| 11. 1l. 9s. 10d. Plaft. | 20. 46 r. 88 f. |
| 11s. 2d. Whit. | 23 2l. 1s. 6½d. amount |
| 12. 15 sq. 36 ft. 4 in. 6" | 21. 20l. 10s. 10¼d. |
| 13. 280 ft. diff. | |
| 18l. 18s. amount | |

Q U E S T I O N S.

275

- | | |
|---------------------------|---------------------------|
| 1. 7½ in. | 23. 14.69 inches |
| 2. 20.7018 in. by 6.0863 | 24. 29.324 in. for B |
| 3. 252 Rows 42 in a Row | 19.013 — C |
| 4. 11½ in. | 25. 114.16 in. too little |
| 5. 5.805 in. | within |
| 6. 2 ft. 3¼ in. | 85.84 in. too much |
| 7. 31 ft. 9¼ inches | without |
| 8. 5 feet | 26. 14 ft. 9¼ in. |
| 9. 92 a. 1 r. 28 p. Chef. | 27. as 13 to 11; or as 1 |
| 67 3 25 York. | to .184628 |
| 10. 2 a. 1 r. 8½ p. | 28. 62.832 ft. |
| 11. 106.85 ft. | 29. 315 yds. |
| 12. 751.75 square ft. | 30. 24.98 |
| 13. 1872 more | 31. 1760.49 Square ft. |
| 14. 2l. 18s. 2d. | wall stands on 4 acr. |
| 15. 157 ft. | 6 p. incloses |
| 16. 1163 hhds. 47½ gal. | 32. 22.136 inches |
| 17. 949¾ links | 33. 6 hours |
| 18. 1 a. 1 r. 1 p. | 34. 78¾ lb. |
| 19. 2 ft. 7½ in. | 35. 20l. 2d. |
| 20. 2l. 9s. 9¼d. | 36. 6 square ft. |
| 21. 27¾ yds. | 37. 12 bushels |
| 22. 11s. 11d. | 38. 9l. 2s. 1¼d. |

M E N S U R A T I O N of S O L I D S 280

- | | |
|-----------------|----------------|
| 1. 42.875 ft. | 5. 1200 nearly |
| 2. 288.638 gal. | 6. 130.9064325 |
| 3. 127.285714 + | 7. 96¼ ft. |
| 4. 82.375 ft. | 8. 105.625 ft. |

9. 450 ft.
10. 19.49762 ft.
11. 7369.052 ft.
12. 1185.928 ft.
13. 100 ft.
24. 140 ft.
25. 144
17. 5760
18. 3520 Cubic ft.
19. 12660
20. 27186
21. 154.9384
22. 452.57+
23. 169.5948
24. 904.7808
25. 1187.5248

Q U E S T I O N S.

1. 4 time as much as the first
2. as 4 to 1
3. 3309 ft. $10\frac{2}{3}$ in.
4. 729 $\frac{27}{112}$
5. 16 hlds. 42 gall.
6. 17.07143 ft.
7. 55.55
8. 12 qrs. 4 bu. 2 pks.
9. 45.3 in.
10. 4 f. 34 inches
11. 33 66 inches
12. 23.5294 inches
13. 61.4678 in.
14. 4101 ft.
15. gained by the Buyer
13 $\frac{2}{3}$ ft. in a Load

293. SPECIFIC GRAVITY.

1. 3.5742+ cwt.
2. 40.73657 cwt.
3. 46.387 lb.
4. 6.7743 inches
5. 418.3398 lb.
6. 4 tons, 12 cwt. 2 qrs.
17.83 lb.
7. 683 tons, 18 cwt. 98 lb.
8. 34l. 12s. 4 $\frac{1}{4}$ d.

26. 385.3696
27. 30.242 ft.
28. 31.10126 ft.
29. 12 $\frac{1}{4}$ ft common way
or 15.68 ft. true, found
by multiplying the
Square of the Circum-
ference by twice the
length.
30. 54.2 common way, or
66.189 ft. true
31. 7 loads
32. 101 gal. Ale, 123 gal.
Wine
33. 265.785 gallons of Ale,
325.33188 gal. Wine
16. 2s. 1 $\frac{1}{2}$ d.
17. 79107034948470144000
grs.
4582428439.1424 fq.
yds.
18. 66264254274148761600
solid yds.
19. 18l. 15s. 8 $\frac{1}{4}$ d.
20. 467 gal. 3 $\frac{6}{11}$ pts.
21. 60.8 ft.
22. 3l. 18s. 10d.
23. 20 bar. 10 $\frac{1}{2}$ gall. of
London ale
24. 237l. 19s. 10 $\frac{1}{2}$ d.
25. 318 tons, 183.8 gal.

9. 6.7743 in.
10. 1316 tons, 18 cwt. 1 qr.
17 lb.
11. weight of the Gold
84.916533 in Water,
.1293 raised
12. 34 oz. 3 dwts. 22 $\frac{1}{4}$ grs.
Gold, 28 oz. 16 dwts.
1 $\frac{3}{4}$ grs. Silver.

C H R O N O L O G Y. 297

- | | |
|----------------------------|------------------------|
| 1. 3 Years past leap Year | 8. 15 Epact |
| 2. Leap Year. | 9. 15 — |
| 3. C. Dominical Letter | 10. 9 day |
| 4. F ————— | 11. 8 — |
| 5. Wednesday | 12. March 30 |
| 6. Tuesday | 13. April 4 |
| 7. 24 and 21 Solar Cycles. | 14. March 31. |
| 13 and 16 Lunar Cycles | 15. 7 h. 12 min. P. M. |
| or Golden Numb. | 16. 6 h. 24 min. P. M. |
| 12 and 9 Indiction | 17. 10 h. 12 m. P. M. |
| Cycle | 18. 1 h. 9 m. A. M. |

Q U E S T I O N S.

- | | |
|------------------------------|------------------------|
| 1. Will. I. reign. 1645 Days | 3. 32948 Days |
| — II. — 4711 — | 8710 Days, Charles I. |
| — III. — 4416 — | reigned |
| 2. 12492 Days | 4. 49956 Days in force |
| | 101778 Days dormant. |

G E O G R A P H Y. 304

1. Lat. $39^{\circ} 45'$ N. 57° S. and Long. 111° E. 80° W.
2. Jamaica and Cape of Good Hope.
3. $10^{\circ} 30''$ and 69°
4. $4682\frac{3}{4}$ Miles, Buda in Hungary, Madrid, &c.
5. Decl. $17^{\circ} 15'$ N. Rig. Asc. $46^{\circ} 45'$ Mer. Al. $55^{\circ} 15'$
6. R. $30'$ P. 4. Sets 37 P. 7. Amp. 30° N. Twil. begins $21'$ P. : ends $30'$ P. 10
7. Aizm. 78° from the N. Alt. $12^{\circ} 30'$.
8. Port Royal bears W. from London, and London bears N. E. from Port Royal
9. $30'$ P. 7 P. M. at Peking, breakfast at Port Royal, dine at Rome, and sup at the Ladron Isles.
10. Antigua, Pagan, one of the Ladrons Isles, &c.
11. May 10 and Sep. 2.
12. All those Places whose Lat. is equal to $72 45'$
13. Begins May 4, and leaves them Aug. 9, following.
14. Rising to N. Mexico Ter. Furgo, &c. Setting to Canady in the Isle of Ceylon, and Part of Asia, &c. Noon at Porto, St. Vincents, &c.
15. Beg. in N. and S. America, the S. and Pacific Seas, Part of Tartary, the Land of Iessa, &c. Mid. all the great S. Sea, the E. and W. Indies, Part of Asia, &c. End. all Asia, and the East Indies, New Holland, the S. Sea, Part of N. America, &c.

17. 63° and something more. Antoecc, part of the Southern Ocean. Perioeci, part of the great Pacific Ocean. Antipodes, part of New Zealand or Part of the Southern Ocean.

CELESTIAL GLOBE.

1. R. at $\frac{3}{4}$, P. 3, Sets 20' P. 4, no Night.
- 2, 3, 4, for these Examples, the best Way will be to answer them for the Year, you are in, and then you will (by Parker's Ephemeris) have in your Power to find the Node of the Moon; and her Place at Noon, likewise the Places of any of the Planets.
5. Del. 29° N. Rig. A. 112. Lat. 6° 30. Long. 19° .
45 Ω
6. Aldebaran. R. at 1. A. M. Sets at 4 P. M. comes to Mer. $\frac{3}{4}$ P. 8. Arap. 26° N.
7. R. cosmically Sep. 24th sets July 6.
8. R. acronically Jan. 25, sets Decem. 18
9. Jan. 13th.
10. Nov. 16th.
11. Obl. dec. 120° cont. 9 hours.
12. Azim. 10° from the N. Alt. 8° .
13. $\frac{3}{4}$ P. 8.
14. 14° 30' N.
15. 7' P. 12.
16. $\frac{1}{4}$ P. 3. A. M.
17. Lat. 44° . 30' N.
18. Lat. 22° . 30' N.
19. 44° 30' S.
20. Arcturus on the Mer. nearly, Canis Minor Setting, and the Star Lyra, Altayr, Cor. Hydra, Cor. Leonis, Castr. Cappella, &c. will be visible.
21. Lat. 3° 30' Long. 26° 30' of ∞ , and Lat. 25° S. Lat. 12° 30' Ω .
22. R. 3 h. 45 m. A. M. Am. 14° sets 2 h. 25 m. P. m. Del. 9° 15' S. Rig. A 227° 30'
23. Through the Tail of Capricorn, the Head of Indus, the Neck and Body of Pavo, the Neck of Apus. Tail of Centaurus, between the two Stars in the Back of Hydra, and then to the Ecliptic near Cor. Leonis, Velocity 4° $\frac{1}{2}$ per Day.



